

REMARKS

Favorable reconsideration of this application is requested in view of the above amendments and following remarks.

Claims 1 and 4 have been amended. Support for the first amended feature (the stretched state) can be found, for example, in the specification at page 13, line 22 to page 14, line 7, at page 14, lines 13-19, and in Figs. 7-10. The support at page 14, lines 13-19, specifically the equation $T=(W_2-W_3) \times 1/2$ quantitatively signifies that the width W_2 on the stretched expansion sheet is maintained when the synthetic resin layer is formed on the sheet. Support for the second amended feature (dicing with LED chips attached) can be found, for example, at page 14, lines 8-22 and Figs. 11-12 of the specification.

Obviousness Rejections

Claims 1-4 have been rejected under 35 U.S.C. 103(a) as unpatentable over Yoem et al. (US Publ. 2003/0190770) in view of Slater, Jr. et al. (US Publ. 2004/0056260), Slater Jr. et al. (US Publ. 2002/0123164), and Cobbley et al. (US Publ. 2004/0032013). Applicants respectfully traverse this rejection.

Claims 1 and 4 are directed to a method for manufacturing a white light-emitting diode element where the LED material plate is diced into individual LED chips while the LED material plate is bonded to the expansion sheet. The expansion sheet is put into a stretched state to be extended in two directions which are perpendicular to each other along a surface so that a spacing between adjacent LED chips is widened, a light-pervious synthetic resin layer is formed containing a fluorescent material on the upper surface of the expansion sheet in the stretched state so that each of the LED chips is embedded in the synthetic resin layer up to the electrode on an upper surface of the LED chip (claim 1) or at least up to a side surface (claim 4), the synthetic resin layer is diced to remove portions of the synthetic resin layer between adjacent LED chips by a cutting width which is smaller than the spacing distance between side surfaces of adjacent LED chips, the dicing is performed with the LED chips attached to the expansion sheet and the LED chips are detached from the expansion sheet.

Regarding the first feature, the Examiner contends that Yeom discloses stretching the expansion sheet along a surface so that a spacing between adjacent LED chips is widened. However, Yeom discloses separating the individual semiconductor devices 14 and then stretching the supporting tape so that the individual semiconductor devices 14 can be removed from the tape (para. [0045]). Thus, the stretching of Yeom is performed to remove the individual semiconductor devices from the tape, not to widen the space between adjacent LED chips. Also, Yeom does not disclose or suggest that the tape is held in the stretched state. This is logical since there would be no reason to keep the tape in the stretched state after the semiconductor devices have been removed from the tape.

Slater '260 discloses a phosphor-containing layer 220 coated on the oblique sidewall 200d of the LED (para. [0036]). None of Slater '260, Slater '164 or Cobbley disclose stretching the expansion sheet along a surface so that a spacing between adjacent LED chips is widened.

Regarding the second feature, none of Yeom, Slater '260 or Slater '164 disclose or suggest the dicing of the synthetic resin layer be performed with the LED chips attached to the expansion sheet. The Examiner contends that Cobbley teaches that the epoxy layer is later cut along grid lines as to separate individual devices. However, at the stage referenced, the first flexible substrate 110 (which is equated to the expansion sheet of claims 1 and 4) has already been removed, and it is the second flexible substrate 130 upon which the cutting of the epoxy layer is performed.

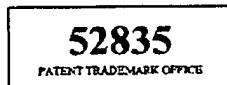
Since none of Yeom, Slater '260, Slater '164 or Cobbley disclose the features of claims 1 and 4, the claim is not obvious from Yeom, Slater '260, Slater '164 or Cobbley or their combination. The rejection of these claims should be withdrawn.

Claims 2 and 3 are allowable at least by virtue of their dependence on independent claim 1. The rejection of these claims should be withdrawn. Applicants do not concede the correctness of the rejection.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

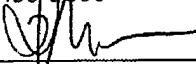
If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,



HAMRE, SCHUMANN, MUELLER &
LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: October 1, 2009

By: 
Douglas P. Mueller
Reg. No. 30,300
DPM/lf